

Answers to Coursebook exercises

6 Planning and collecting data



Exercise 6.1 Identifying data

- 1
 - a More men than women watch sport on the TV.
 - b Silver is the most popular colour of car that is sold.
 - c Girls are better than boys at estimating the masses of different objects.
 - d The more you revise, the better your exam result will be.
- 2
 - a
 1. For example: Boys are better than girls at maths.
 2. For example: 'Are you a boy or girl?', 'What maths group are you in?', 'What were your percentage marks in the last two maths tests?'
 3. For example: maths test marks of boys and girls
 4. For example: survey students, survey maths teachers for opinions
 5. For example: 80, 40 boys and 40 girls
 6. For example: test marks in percentages
 - b For example: age, maths set, good at other subjects too, like teacher, like school
 - c For example: He won't know the age, maths set or ability most of the other students in the sample, so it will be difficult to compare fairly.
- 3
 - a
 1. For example: The letter 'e' is the most commonly used letter in the book.
 2. For example: Is 'e' the most commonly used letter in the book?
 3. For example: how many of each letter of the alphabet are in the book
 4. For example: use a tally chart
 5. For example: 12 pages (10% of 120 pages)
 6. For example: tally every letter in the pages chosen
 - b For example: Is 12 pages enough? Has she chosen pages with pictures? Has she chosen pages without pictures? Should she bother to tally less usual letters such as q, y, k, z and x?
 - c The tally chart will be very large with lots of information on it; she may get confused and put a tally in the wrong row, although a few errors may not affect the final outcome.
- 4
 - a Need an equal number of boys and girls in the sample. Need to have a wide range of students, not just good mathematicians.
 - b She lives a long way from her school, students from nearby may not use a bus. She needs to ask students who live a variety of distances from her school, choosing 52 students (10% sample) at random.

Exercise 6.2 Types of data

- 1
 - a Secondary. Sasha can't measure children from 50 years ago.
 - b Primary. Easy to do a survey.
 - c Secondary. Impossible for one person to measure the rainfall in the whole of India.
 - d Either: Secondary. Can't find this information for the whole country/world.
Or: Primary. Could survey the people in street/school/church, etc. what make of TV they have.
 - e Secondary. There are millions of government employees.
 - f Either: Secondary. Can't find this information for the whole country/world.
Or: Primary. Could survey all 15-year-old students in my area/school
 - g Either: Secondary. Can't find this information for the whole country/world.
Or: Primary. Could ask a sample of the people in street/school/church, etc. about their shoe size.
 - h Either: Secondary. Can't find this information for the whole country/world.
Or: Primary. Could survey the people in street/school/church, etc. how many visits to the dentist they made last year.
- 2
 - a For example: People in the USA and Europe are similar, so they would have similar taste in car colour.
 - b For example: Different cars are sold in different parts of the world, so the most popular colours may be different too.

Unit 6 Answers to Coursebook exercises

Exercise 6.3 Designing data-collection sheets

1

Colour	Tally	Frequency
Red		
Yellow		
Blue		
Green		

2

Make of car	Tally	Frequency
BMW		
Ford		
Nissan		
Toyota		
Vauxhall		
Other		

3

Number of holidays	Tally	Frequency
0		
1		
2		
3		
4		
5		
6		

4

Score	Tally	Frequency
2		
3		
4		
5		
6		
7		
8		

5

Flavour	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11
Vanilla					
Strawberry					
Chocolate					
Raspberry ripple					
Mint choc-chip					
Other					

- 6 a No 'less than 20' category, overlapping values, no 'over 50' category.

b

Age (years)	Tally	Frequency
10–19		
20–29		
30–39		
40–49		
50–59		
60+		
Total		

- 7 a No 'zero' option, overlapping values, different sized groups, no '7 or more' option, can't tell whether this is for men or women.

b

	Men		Women	
Number of times	Tally	Frequency	Tally	Frequency
0				
1–2				
3–4				
5–6				
7+				

Exercise 6.4 Collecting data

1 a

Number	Tally	Frequency
1	### /	6
2	////	4
3	///	3
4	### //	7
5	//	2
6	### ///	8
Total		30

- b The number 6 is the most common number rolled. The number 5 is the least common number rolled.

2 a

Number	Tally	Frequency
0–9		0
10–19		0
20–29	//	2
30–39	////	4
40–49	### /	6
50–59	###	5
60–69	///	3
Total		20

- b The most common score was 40–49 points.

3 a

Number	Tally	Frequency
50–59	////	4
60–69	### ///	8
70–79	###	5
80–89	### /	6
90–99	/	1
Total		24

- b The most commonly found masses were in the 60–69 kg group.

Unit 6 Answers to Coursebook exercises

- 4 **a** A suitable question, not requiring measurement of any sort
b A suitable data-collection sheet for the survey
c Completed data-collection sheet
d A valid conclusion
- 5 **a** A suitable question, one which requires measurement of some sort
b A suitable data-collection sheet for the survey
c Completed data-collection sheet
d A valid conclusion

End-of-unit review

- 1 Good basketball players are also good at rugby.
- 2 **a** 1. For example: Boys eat more chocolate than girls do.
 2. For example: 'How much chocolate do you eat per week?', 'How many chocolate bars do you eat, on average, per week?'
 3. For example: amount of chocolate eaten by boys and girls
 4. For example: survey
 5. For example: whole class (if there is an equal gender ratio in the class), or 10% of Maha's school, with equal number of boys and girls
 6. For example: as accurate as possible
b Will people tell the truth? Will they remember chocolate bars but forget individual chocolates they've eaten? She needs to find a way of defining the size of chocolate bars.
c Some might not want to tell her the truth. Some might not be able to remember accurately.
- 3 **a** American women and Canadian women must be fairly similar, so they must have about the same number of shoes.
b Different climates mean different footwear, possibly American women have (and spend) more (or less) money than Canadian women.
- 4 **a** For example: This average would have been based on a large sample of shop assistants.
b For example: Shop assistants in cities might earn more than those not in cities, so the true average might be lower.
- 5 **a** No 'zero' option, overlapping values, different sized groups, no '7 or more' option, can't tell whether this is for men or women. Note: different number of men and women in the sample doesn't affect her data collection sheet.

b

	Men		Women	
Number of films	Tally	Frequency	Tally	Frequency
0				
1–2				
3–4				
5–6				
7+				

6 **a**

Number of goals	Tally	Frequency
0	### //	7
1	###	5
2	////	4
3	///	3
4		0
5		0
6	/	1
	Total	20

- b** The most common number of goals scored is 0.